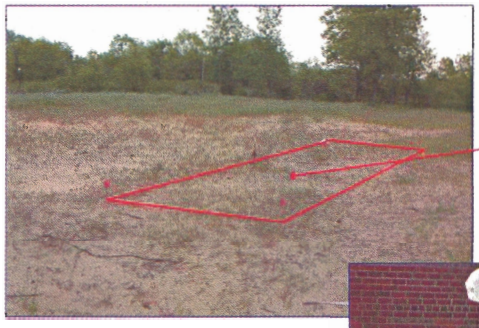
Using Geophysics to Locate a Buried Tanker

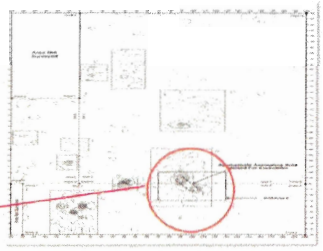
Carrie Middleton, Kerita Kegler, Mark Vendl, and Jim Ursic

Overview

The U.S. EPA Criminal Investigation Division received information that an 8,000-gallon tanker trailer that possibly contained hazardous waste was buried on a commercial property. NEIC collaborated with Region 5 geophysical experts to find, unearth, and sample the buried tanker. Using global positioning system (GPS) mapping technology, geophysical survey with magnetometry, data processing of geophysical anomalies, and contractor-operated heavy equipment, the 8,000-gallon tanker was found, unearthed, and sampled. The NEIC/Region 5 collaboration resulted in successfully locating the tanker; it was unearthed safely and without a great deal of damage to the property. Without the collaborative efforts of NEIC and Region 5, the discovery and unearthing of the tanker may not have occurred without excessive property damage, safety risks, and high cost.

Mapping of Geophysical Survey Grids

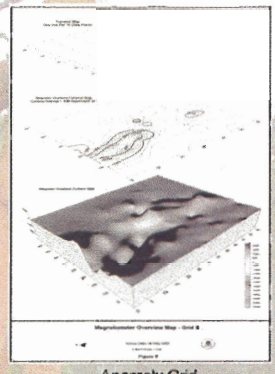




Base Map Showing GPS Points

Used GPS Mapping to precisely record the grids during the geophysical survey

Geographic Information System Showing Extent of Work Area



Anomaly Grid

Geophysical Equipment

Geometics G-858 Cesium Vapor Gradient Magnetometer

Measures magnetic anomalies (mostly from the result of secondary magnetization induced in a ferrous body by the earth's magnetic field).

Geonics EM-61

Ground Penetrating Radar

Works on the principal of relative dielectric permittivity of subsurface materials.

NEIC epascienceforum Collaborative Science for Environmental Solutions 2005

Office of Enforcement and Compliance Assurance | Office of Compliance, Enforcement and Forensics Training | National Enforcement Investigations Center